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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/581,004	07/17/2000	SHUSAKU OKAMOTO	MTS-3200US	2255

7590 03/12/2007  
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EXAMINER
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ART UNIT	PAPER NUMBER
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2621

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/12/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

09/581,004

Applicant(s)

OKAMOTO ET AL.

Examiner

Tung Vo

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE \_\_\_\_\_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 December 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,5,8,9,11,12,14-20,24,26,29,30,32,37,43 and 44 is/are pending in the application.
- 4a) Of the above claim(s) 2-4,6, 7,10,13,21-23,25,27,28,31,33-36 and 38-42 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 43 and 44 is/are allowed.
- 6) ☒ Claim(s) 1,5,8,9,11,12,14-20,24,26,29,30,32 and 37 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1, 5, 8-9, 11-12, 14-20, 24, 26, 29-30, 32, and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ejiri et al. (US 5,969,969) in view of in view of Kumamoto Kenji (JP 10-257482).

Re claims 1 and 37, Ejiri teaches a vehicle--operation assist for a vehicle (100 of figs. 33 and 37) mounted with a camera (120, 124 of fig. 33), said vehicle operation assist comprising: an imaging unit (120, 124, 125 of fig. 33) operable to generate a circumferential state image using an output image from the camera (124 of fig. 33), said circumferential state image viewed from synthetic-image generating unit (117 of fig. 33) operable to generate a synthetic image using the circumferential- state image (126a, 115a of fig. 33), said synthetic image including a surrounding space around the vehicle (fig. 34, Note X is surrounding the car 100b) and an assumed-movement pattern image (114b and 116c of fig. 33) which is based on a predetermined driving operation of the vehicle (118 of fig. 33) and a display unit (160 of fig. 33) operable to display the synthetic image (figs. 37-42), the assumed-movement pattern image including a movement of the vehicle (the arrow shows forward movement of the vehicle (A, B, C of fig. 39) between a start position of the vehicle (when the vehicle prepares for parking, there would be a start

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position, 100 start position, the vehicle (100 of fig. 39) is not in a park position yet) and a parking position of the vehicle (the vehicle in a completely parked position would obviously be considered as end position) in case of performing the predetermined driving operation (706, 707, 708 of fig. 38).

It is noted that Erjiri does not particularly teach a virtual viewpoint, said virtual viewpoint being different from a viewpoint of the camera as claimed.

However, Kenji teaches the synthetic image (42 of fig. 5-8) showing the car (46 of fig. 5) from a virtual point of view as three dimensional space (8 of fig. 8) that is converted from the actual viewpoint (6, 10, 11, 14, and 15 of fig. 2; 37 of fig. 3) so this suggests a virtual viewpoint as a three-dimensional space, said virtual viewpoint being different from a viewpoint of the camera.

Therefore, taking the teachings of Erjiri and Kenji as a whole, it would have been obvious to one skill of ordinary skill in the art to incorporate the teachings of Kenji into the image processing apparatus of Erjiri for displaying a generated synthetic image showing the vehicle from a virtual point of view using the real image captured from cameras.

Doing so would provide an always clean car circumference image can be seen by detecting the variation rate of the car body by the irregularity of a road surface by the acceleration sensor, feeding back to a display image, and removing the shake of an image.

Re claims 5, 8, 9, Erjiri further teaches the circumferential state image viewed from a predetermined viewpoint as a point fixed three-dimensional space or the vehicle (fig. 39), and the viewpoint converting unit is included that changes the predetermined viewpoint automatically or through an input from a driver (118 of figs. 33 and 37); wherein the assumed-movement pattern

image includes virtual poles arranged on the outer edge of the vehicle movement area (A, B, C, and D of fig. 39); the synthetic-image generating unit superimposes a current-position camera in which the vehicle is present, on the circumferential-state image to generate the synthetic image (D and A of fig. 39).

Re claims 11 and 12, Erjiri further teaches wherein when actual driving operations corresponding to predetermined series of driving operations are started (130 of figs. 33 and 37; see also fig. 38), the synthetic-image generating unit fixes positional relation between the assumed-movement pattern image and the circumferential-state image at the point of time when the actual driving operations are started and generates the synthetic image (706, 707 and 708 of fig. 38); a positional-information storing unit is included which stores positional information of the whole or a part of the assumed-movement pattern image with regard to the whole or a part of the video data for the circumferential-state image on the synthetic image when the actual driving operations are started (116 of figs. 33 and 37), and; the synthetic-image generating unit (117 of figs. 33 and 37) fixes the positional relation in accordance with the positional information.

Re claims 14-20, Erjiri further teaches wherein a final-position inputting unit for inputting a final position which is a position of the vehicle at end of the movement and a start-position determining unit for obtaining a start position which is a position at start of the movement corresponding to the input final position in accordance with the-an assumed-movement pattern are included (709 of fig. 38), and the synthetic-image generating unit superimposes the input final position and the start position corresponding to the input final position on the circumferential-state image to generate the synthetic image (fig. 39); a start-position guiding unit (118a of fig. 33 and 37) is included which guides the vehicle to the start

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position by automatically controlling driving of the vehicle; an assumed-movement-pattern storing unit (116b of figs. 33 and 37) holds a plurality of assumed-movement patterns; the assumed-movement-pattern storing unit holds a plurality of assumed- movement patterns (116b of fig. 33 and 37), and a pattern selecting unit (118 of figs. 33 and 37) is included which automatically selects the assumed- movement pattern through an input from a driver or a predetermined driving operation; wherein the pattern correcting unit (709, 710, and 711 of fig. 38) is included which updates and corrects content of the assumed-movement pattern stored in the assumed- movement-pattern storing unit; wherein the pattern correcting unit updates and corrects the assumed- movement pattern (140 of fig. 37, Note updates and corrects the current positions of the vehicle) in accordance with the vehicle positions at start and end of the corrected movement input from a driver (NOTE the guidance information selector (118 of figs. 33 and 37) then selects the most proper guidance information (118a of figs. 33 and 37) for the driver from the viewpoint of safety, allowance, etc. according to whether or not it is possible for the driver to judge the information subjectively. The selected result is output onto the display unit (160 of figs. 33 and 37), such as an instrument panel, console panel and so on); wherein the pattern correcting unit updates and corrects the assumed- movement pattern in accordance with an actual driving operation.

Re claims 24, 26, 29, 30, and 32, Erfiri further teaches wherein when the viewpoint converting unit changes the predetermined viewpoint, the viewpoint converting: unit fixes the predetermined viewpoint to the vehicle before the actual driving operations corresponding to the predetermined series of driving operations are started (fig. 40) and wherein the assumed-movement pattern image includes a circumscribed area on a space through which the vehicle

passes when the predetermined series of driving operations are performed (fig. 39); wherein the assumed-movement includes a change from a backward movement to a forward movement or from a forward movement to a backward movement in the predetermined series of driving operations (fig. 40); wherein an obstacle inputting unit is included which is able to input a position of an obstacle area in an image to the display unit for displaying the synthetic image (fig. 34, elements x and 100b); wherein the pattern correcting unit updates and corrects the assumed-movement patterns in accordance with a position of an obstacle area input from a driver (JUDGMENT of fig. 35).

#### *Response to Arguments*

2. Applicant's arguments filed 12/04/2006 have been fully considered but they are not persuasive.

The applicant argued that Ejiri does not disclose said synthetic image including a surrounding space around the vehicle and an assumed-movement pattern image which is based on a predetermined driving operation of the vehicle, and the assumed-movement pattern image, including a movement of the vehicle between a start position of the vehicle and a parking position of the vehicle, page 10 of the remarks.

The examiner respectfully disagrees with that applicant. It is submitted that Ejiri teaches said synthetic image (fig. 39) including a surrounding space (fig. 24, Note X is surrounding the vehicle 100b) around the vehicle and an assumed-movement pattern image (Arrow of fig. 39, 100 B position) which is based on a predetermined driving operation of the vehicle (Note information indicative of the start of a preceding vehicle from a stopped position in front of said vehicle), and the assumed-movement pattern image, including a movement of the vehicle

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between a start position of the vehicle and a parking position of the vehicle (100 and B of fig. 39, Note the vehicle is start to park and completely parked at position B). This disclosure would have been fairly suggested the display that displays the synthetic image includes the start and park position of the vehicle with the surrounding space. In view of the discussion above, the claimed features are unpatentable over Ejiri.

***Allowable Subject Matter***

3. Claims 43 and 44 are allowed.

***Conclusion***

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

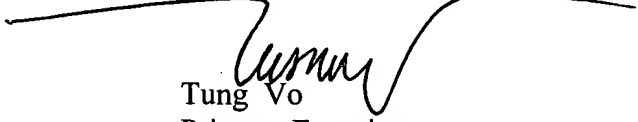
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tung Vo whose telephone number is 571-272-7340. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on 571-272-7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Tung Vo  
Primary Examiner  
Art Unit 2621